'Skookum Seedless' Table Grape

A.G. Reynolds¹, M.J. Bouthillier², D.A. Wardle², and L.G. Denby³

Pomology and Viticulture Section, Agriculture and Agri-Food Canada Research Station, Summerland, British Columbia V0H 1Z0, Canada

Additional index words. *Vitis*, grape breeding

Expansion of the table grape (*Vitis* spp.) industry in British Columbia and Ontario has created demand for uniquely flavored, winter-hardy, disease-resistant, seedless cultivars that mature early in the season. 'Skookum Seedless' (Fig. 1) is one of two seedless cultivars that have earned significant interest locally and elsewhere. The word "Skookum" means "large" in "Chinook" trade jargon (a slang used by original settlers in western Canada), and refers to this cultivar's large berries. 'Skookum Seedless' is a green, seedless, early to midseason cultivar with a mild fruity flavor, and matures at Summerland in early to mid-September.

Origin

'Skookum Seedless' was selected as Summerland Selection 495 in 1984 by M.J.B. and A.G.R. from a cross made in 1977 between Vineland 37034 ('Seneca' × 'Golden Muscat') and Romulus' (Fig. 2), under the direction of L.G.D. Data were gathered at Summerland (Table 1) on vine performance and fruit composition on the original seedling (1984–91; planted 1980, "Y"-shaped divided canopy), from an additional two five-vine plots (1988–93; planted 1986, bilateral cordon training), and from six five-vine plots within a randomized cultivar trial (1993–95; planted 1991, bilateral cordon training). The cultivar trial was established in 1991 as a completely randomized design within the existing selection evaluation vineyard, that contained 74 (of 169) vacant postlength plots available for planting. The trial consisted of six five-vine replications each of eight Summerland selections and seven named cultivars. 'Himrod', 'Interlaken', 'Lakemont', and 'Romulus' were included as the named seedless green cultivars to compare against 'Skookum Seedless'. The two existing plots of 'Skookum Seedless' (planted 1986) were incorporated into the trial. All vines were own-rooted, spaced 1.6 × 3.0 m (vine × row), trained to 1.8-m-high bilateral cordons, pruned to 20 nodes per meter as five-node spurs, and maintained under clean cultivation.

Description and performance

'Skookum Seedless' leaves are medium sized (10 to 15 cm long), orbicular, and three lobed, containing a petiolar sinus with over-

lapping lobes. Leaf surfaces are medium-green and glabrous above and below. Serrations are irregular and concave. The growing tip is slightly felty, with rose margins. Growth habit is procumbent.

'Skookum Seedless' has produced very high yields (27.8 t·ha⁻¹) when trained to divided canopies, while bilateral cordon-trained vines yielded ≈40% less (Table 1). Clusters of 'Skookum Seedless' (Fig. 1) are medium-large, moderately well filled, triangular, and winged, and have varied in mass between 166 and 384 g depending on use and/or degree of cluster thinning (Table 1). There is a slight tendency for the clusters to shatter in some years if allowed to become overripe. Berries are seedless, nonslipskin, large (>2.2 g), elliptical, and green; mean berry mass has exceeded 3.0 g in some seasons depending on the effectiveness of cluster thinning. Soluble solids concentration (SSC) averages 19.6%, with a mean titratable acidity (TA) of 8.3 g·L⁻¹, although TA has been as high as 14.8 g·L⁻¹ in cool seasons, such as 1989 (Table 1). Mean pH

was 3.16 between 1984 and 1995, but ranged from 2.77 to 3.82 (Table 1).

'Skookum Seedless' outyielded 'Himrod', 'Interlaken', 'Lakemont', and 'Romulus'; had higher cluster and berry mass; and equal or higher pH ('Interlaken' excepted), but had lower berries per cluster ('Himrod' excepted) and SSC (Table 2). Compared to its sister seedling, 'Sooke Seedless' (Reynolds et al., 1997), 'Skookum Seedless' has similar yields (15.2 vs. 15.9 t·ha⁻¹ for 'Sooke Seedless'), but 'Skookum Seedless' has higher cluster mass (242 vs. 194 g), higher berry mass (3.00 vs. 1.83 g), lower mean SSC (19.6 vs. 25.3) and lower TA (8.3 vs. 9.6 g·L⁻¹).

Flavor of 'Skookum Seedless' is mildly fruity in character. Texture is moderately crisp, with a thin but slightly astringent skin. Residual seed traces are not commonly apparent. Harvest date is early midseason, with 'Interlaken', or slightly before, about 18 Sept. in Summerland.

Culture

'Skookum Seedless' vines on irrigated silt loam soil have not exceeded a mass of 1.6 kg of cane prunings per vine (vine size) at a 1.6 × 3.0-m (vine × row) spacing, and averages ≈0.6 kg per vine on a bilateral cordon. Training systems, such as Hudson River Umbrella or Umbrella Kniffin, would likely be suitable on most sites, while a divided canopy consisting of 1.6-m-high bilateral cordons has been successful in accommodating high-vigor vines. Low fruitfulness has been absent in the lower-

Fig. 1. Cluster of 'Skookum Seedless'.

Received for publication 16 Oct. 1996. Accepted for publication 13 Jan. 1997. Contribution no. 1030. The cost of publishing this paper was defrayed in part by the payment of page charges. Under postal regulations, this paper therefore must be hereby marked advertisement solely to indicate this fact.

¹Research Scientist.

²Research Assistant.

³Research Scientist (retired).

Fig. 2. Pedigree of 'Skookum Seedless' grape. Legend: a = *Vitis aestivalis* Michaux; l = *V. labrusca* L.; v = *V. vinifera* L.

Table 1. Yield and fruit composition of 'Skookum Seedless' table grape, Summerland, B.C., 1984–95.

Harvest date	Year	Yield (t·ha ⁻¹)	Cluster mass (g)	Berry mass (g)	Mass of cane prunings (kg/vine)	Fruit composition		
						SSC ^z (%)	Titrate acidity (g·L ⁻¹)	pH
16 Oct.	1984 ^y	4.4	---	---	---	21.8	13.4	3.16
16 Sept.	1985	---	---	---	---	22.2	10.4	3.20
22 Sept.	1986	21.8	---	---	---	19.7	11.0	3.24
14 Sept.	1987	27.8	---	---	---	19.4	8.8	3.23
13 Sept.	1988	11.3	---	---	---	20.0	10.0	3.82
19 Sept.	1989	12.6	218	2.20	---	17.5	14.8	2.77
17 Sept.	1990	---	281	2.67	---	17.7	11.5	3.02
24 Sept.	1991	16.1	313	3.54	0.50	18.5	10.3	3.02
14 Sept.	1992	14.1	384	3.16	---	20.7	9.2	3.28
28 Sept.	1993	10.2	166	2.41	0.72	18.3	10.7	2.90
14 Sept.	1994	6.2	208	3.44	0.53	21.4	6.7	3.21
18 Sept.	1995	27.2	279	2.76	0.54	18.5	7.1	3.04

^zSSC = soluble solids concentration.

^yData from 1984 to 1987 are based on the original seedling planted in 1980, at a 1.8 × 3.0-m (vine × row) spacing, divided canopy training, in a sandy loam soil; data from 1988 to 1995 are based on a mean of: 1) the original seedling (1988–90 only), plus 2) two five-vine plots planted in 1986, 1.6 × 3.0-m spacing, bilateral cordon training, silt loam soil, plus; 3) four additional five-vine plots planted in 1991, 1.6 × 3.0-m spacing, bilateral cordon training, silt loam soil.

Table 2. Performance of 'Skookum Seedless' and four commercial green seedless table grape cultivars, Summerland, B.C., 1993–95.

Cultivar	Yield (t·ha ⁻¹)	Cluster mass (g)	Berries/cluster	Berry mass (g)	SSC ^z (%)	Titrate acidity	
						(g·L ⁻¹)	pH
Skookum Seedless	15.2 a ^y	242 a	81 c	3.00 a	19.6 c	8.3 a	3.09 b
Himrod	11.7 b	147 c	83 c	1.78 b	19.9 c	6.6 c	3.03 c
Interlaken	14.0 ab	191 b	113 ab	1.70 b	22.5 a	7.0 bc	3.21 a
Lakemont	12.3 b	208 b	120 a	1.71 b	21.0 b	7.5 b	3.08 b
Romulus	12.5 b	183 b	102 b	1.78 b	21.6 b	8.8 a	2.94 d
Significance	*	***	***	***	***	***	***

^zSSC = soluble solids concentration.

^yData were obtained from a completely randomized experiment containing six, five-vine plots for each cultivar. Vines were planted in 1991, with the exception of two 'Skookum Seedless' plots planted in 1986. Vines were own-rooted, trained to 1.8-m-high bilateral cordons, and spaced 1.6 × 3.0 m (vine × row).

*,***Significant at $P \leq 0.05$ or 0.001, respectively. Means separated at $P \leq 0.05$ by Duncan's multiple range test. Cultivar × year interactions were nonsignificant for any of the variables.

most two nodes of bearing units retained at pruning; however, due to its *V. labrusca* heritage, we have found it prudent to use long spurs (about five nodes) or use cane pruning to ensure consistent yields. A pruning strategy of 20 nodes per meter row or canopy has been satisfactory to maintain consistent yields and vine size on divided and undivided canopies. Cluster mass and volume and berry mass have been improved slightly by cluster thinning to one cluster per shoot, and were increased markedly by application of phenylureas (Reynolds et al., 1992). Winter survivability of primary buds is equal to hybrid winegrapes, such as 'Seyval blanc', 'Verdelet', and 'Vidal blanc', and superior to the pollen parent, 'Romulus' (data not shown). No foliar powdery mildew [*Uncinula necator* (Schwein.) Burr.] has been noted under a normal sulfur-based control program. Other diseases and most major insect pests do not occur in the testing region, hence the levels of resistance to downy mildew (*Plasmopara viticola* Berkeley & Curtis ex de Barry), black rot [*Guignardia bidwellii* (Ellis) Viala & Ravaz], and phylloxera (*Daktulosphaira vitifoliae* Fitch.) are not known.

Uses

'Skookum Seedless' is recommended solely for use as a table grape. Its delicate flavor is not suitable for jelly, juice, or wine. Storage trials in 1990 and 1991 showed 'Skookum Seedless' to be in satisfactory condition after 6 weeks at 2 °C. Using polyethylene covering and SO₂ pads, there was only an 11% mean mass loss, and an average of eight shattered berries per cluster following storage (Reynolds et al., 1992). 'Skookum Seedless' has been popular with Okanagan Valley grape growers since its limited release in 1985. Sensory studies (Cliff et al., 1996) showed 'Skookum Seedless' clusters to have a very high degree of visual attractiveness. Several thousand cuttings were distributed among British Columbia and Ontario grape growers between 1985 and 1995.

Availability

Noncertified virus-free cuttings may be obtained from A.G.R. Tissue-cultured plants are available from Agriforest Industries, Kelowna, B.C. (western Canada and the United States). Nursery-grown vines can also be obtained from Euro Nurseries, Jordan, Ont. (eastern Canada and the United States), and from Tappen Valley Growers, Tappen, B.C. (lower mainland of British Columbia and Vancouver Island). There are no immediate plans for patenting this cultivar.

Literature Cited

- Cliff, M.A., M.C. Dever, and A.G. Reynolds. 1996. Descriptive profiling of new and commercial British Columbia table grape cultivars. *Amer. J. Enol. Viticult.* 47:301–308.
- Reynolds, A.G., M.J. Bouthillier, D.A. Wardle, and L.G. Denby. 1997. 'Sooke Seedless' table grape. *HortScience* 32:745–746.
- Reynolds, A.G., D.A. Wardle, C. Zurowski, and N.E. Looney. 1992. Phenylureas CPPU and thidiazuron affect yield components, fruit composition, and storage potential of four seedless grape selections. *J. Amer. Soc. Hort. Sci.* 117:85–89.